

Family Pomatomidae

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Body oblong, moderately compressed, especially belly. Head rather large, more so in young, compressed. Snout conic. Eye moderate, little advanced in head, without adipose lids. Maxillary extends below eye. Premaxillaries protractile. Teeth uniserial in jaws, with canines. Bands of fine teeth on palate and tongue. Nostrils together. Opercle ends in flat point. Preopercle with membranous flap extending over subopercle. Gill membranes free from isthmus. Gill rakers lanceolate. Gills 4, slit behind fourth. Branchiostegals 7. Vertebrae 26, of which 15 or 16 caudal. Scales moderate or small,

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rows, narrowly exposed, small, weakly ctenoid. Cheek and opercles scaly. Soft vertical fins densely covered basally with small scales. Lateral line complete, axial, unarmed. Spinous dorsal of 7 or 8 low, weak spines, joined by membrane and depressible in groove. Second dorsal long. ~~depressible in groove~~. Anal with 2 very small free spines, sometimes hidden under skin, fin like second dorsal. Caudal lobes broad. Pectoral not quite reaching half way to anal, longer in young. Ventral inserted little behind pectoral origin.

A single species widely distributed in most tropical seas, voracious and highly valued

as food in many places.

Genus Pomatomus Lacépède

Pomatomus Lacépède, Hist. nat. Poiss., vol. 4, pp. 5, 436, 1802. (Type Pomatomus skib Linnaeus, monotypic.)

Saltatrix Catesby, Nat. Hist. Carolina, vol. 2, p. 14, 1771. (Type Perca saltatrix Linnaeus, tautotypic.)
(Inadmissible.)

Lopharis Rafinesque, Cur. nov. Animal. Sicil., p. 52, 1810. (Type Perca lophar Forsk., monotypic.)

Gonenion Rafinesque, Cur. nov. Animal. Sicil., p. 53, 1810. (Type Gonenion serra Rafinesque, monotypic.)

Temnodon Cuvier, Règne Animal, vol. 2, p. 346, 1817. (Type Cheilodipterus heptacanthus Lacépède, monotypic.)

²
 $\frac{1}{m}$ Elera, Cat. Fauna Filipinas, vol. 1,
1895, p. 479 (Manila Bay). $\frac{1}{m}$ Jordan
and Snyder, Annot. Zool. Japon., vol.
3, 1901, p. 84 (Nagasaki). $\frac{1}{m}$ Jordan
and Richardson, Bull. Bur. Fisher.,
vol. 27, 1907 (1908), p. 260 (Manila). $\frac{1}{m}$
Seale, Philippine Journ. Sci., vol. 5, no. 4,
Oct. 1910, p. 279 (Sandakan, Borneo). $\frac{1}{m}$
Kendall and Goldborough, Mem. Mus.
Comp. Zool., vol. 26, 1911, p. 293 (Suva, Fiji).
 $\frac{1}{m}$ Snyder, Proc. U. S. Nat. Mus., vol. 42,
1912, p. 416 (Kagoshima). $\frac{1}{m}$ Hase, Jena.
Zeitschr. Nat., vol. 51, 1914, p. 529, fig. 2
(dentition), fig. 3 (spinous dorsal)
(Tami, Kaiser Wilhelm Land, New Guinea).
 $\frac{1}{m}$ Seale, Philippine Journ. Sci., vol. 9,
no. 1, 1914, p. 68 (Hong Kong). $\frac{1}{m}$ Herr and
Montalban, Philippine Journ. Sci., vol. 36,
no. 1, May 1928, p. 103, pl. 3, fig. 1 (Vigan,
Zamortia and Rabon, Iglaminos, Iba, Orani,

Sypterus Eichwald, Zool.

Special., vol. 3, p. 69, 1831.

(Type Sypterus pallasii Eichwald,
monotypic.)

Chromis (not Cuvier) (Garden)

Gray, Cat. Fish Gronow, p. 149,
1854. (Type Chromis epicurorum
Gray, monotypic.)

Cheilodipterus (not Lacepede)

Bleeker, Nat. Verh. Holland.

Maatsch. Haarlem, ser. 3, vol. 2,

(Rev. Apogon), p. 74, 1874. (Type

Cheilodipterus hexacanthus Lacepede,
orthotypic.)

Spharactodon Rochebrune, Bull.

Soc. Philom., Paris, ser. 7, vol. 4, p.

162, 1880. (Type Spharactodon

nubra Rochebrune, monotypic.)

Upeneus sulphureus Evermann and
Seale, Bull. Bur. Fisher., vol. 26,
1906 (1907), p. 88 (San Fabian). (Error.)
Upeneoides sulphureus Bleeker, Verhandl.
Batavia. Genootsch. (Percoid.), vol. 22,
1849, p. 63 (Java). $\frac{1}{m}$ Günther, Cat.
Fishes Brit. Mus., vol. 1, 1859, p. 398
(Red Sea, Amboyna, China, New Hebrides).
 $\frac{1}{m}$ Day, Fishes of India, pt. 1, 1875, p. 120,
pl. 30, fig. 3. $\frac{1}{m}$ Karoli, Termeseg. Füzetek,
Budapest, vol. 5, 1881, p. 156 (Yokohama).
 $\frac{1}{m}$ Steindachner and Göderlein,
Denkschr. Akad. Wiss. Wien, math.-
naturwiss. Classe, vol. 48, 1883, p. 23
(Nagasaki). $\frac{1}{m}$ Meyer, An. Soc. Españ.
Hist. Nat. Madrid, vol. 14, 1885, p. 16
(Manado, Celebes). $\frac{1}{m}$ Day, Fauna British
India, Fishes, vol. 2, 1889, p. 25. $\frac{1}{m}$
Sauvage, Hist. Nat. Madagascar, Poiss.,
1891, p. 217, pl. 27, fig. 1 (type; Anger).

Body robust, edge of belly rounded. Head deep. Snout long as wide. Eye rounded.

Maxillary slightly curved, not slipping below preorbital.

Supplemental maxillary present.

Mouth oblique, lower jaw projecting. Each jaw with row of uniserial, slender, compressed, pointed, large, strong, wide set teeth. Triangular patch of villiform teeth on vomer, band on each palatine, also patch on base of tongue. Nostrils close before eye. Cheek much longer than opercle. Lower gill rakers 11 to 13. Pseudobranchiae large. Air bladder simple, with thin walls. Pyloric appendages very numerous. Scales in longitudinal

Lateral line present, complete.
Dorsals 2, spines connected by
membrane. Anal like soft
dorsal and opposite. Caudal
forked. Pectoral short. Ventral
thoracic.

Pomatomus saltator (Linnaeus)

Perca saltatrix Linnaeus, Syst.
Nat., ed. 10, pt. 1, p. 293, 1758
type locality, "America" [=
Charleston, South Carolina].

Gasterosteus saltatrix Linnaeus,
Syst. Nat., ed. 10, pt. 1, p. 491, 1766
(Carolina). — Forster, Cat. Animals
North America, p. 22, 1771 (on
Catesby). — Bonnaterre, Tabl. Ichth.,
p. 137, pl. 57, fig. 224, 1788 (Carolina).
— Gmelin, Syst. Nat. Linnaeus, pt. 1,
p. 1326, 1789 (copied). — Walbaum,
Artedi Pisc., vol. 3, p. 449, 1792
(copied).

¹²⁹
Cuvier Upeneus sulphureus Cuvier.

Upeneus sulphureus Cuvier, Hist. Nat.
Pois., vol. 3, 1829, p. 45. Anger, Straits
of Honda. $\frac{1}{m}$ Bleeker, Verhandel. Akad.
Wetensch. Amsterdam, vol. 15, no. 3,
1875, p. 4 (Java, Madura, Bali,
Sumatra, Singapore, Bintang, Banka,
Celebes, Sumbawa, Buru, Amboina,
Waigiu); Atlas Ichth. Ind. Néerland,
vol. 9, 1877, pl. (3) 393, fig. 4. $\frac{1}{m}$
Jordan and Seale, Bull. Bur. Fisher.,
vol. 26, 1906 (1907), p. 26 (Cavite). $\frac{1}{m}$

Snyder, Proc. U. S. Nat.
Mus., vol. 32, 1907, p. 89 (Samoa). $\frac{1}{m}$
Weber, Siboga Exped. Fische vol. 57,
1913, p. 293 (Lombok, Bima, Macassar).
 $\frac{1}{m}$ Beaufort, Bijdr. Dierk. Amsterdam, vol. 19,
1913, p. 123 (Kairatu, west Ceram).

Temnodon saltator Cuvier, Hist. Nat. Poiss., vol. 9, p. 225, pl. 266, 1833 (Brazil; Bahia; Montevideo; Amboina; Port Jackson; Alexandria). — Valenciennes, Règne Animal, Cuvier, ed. ill., Poiss., pl. 56, fig., 1839. — Bleeker, Nat. Tijds. Ned. Indie, vol. 21, pp. 50, 53, 64, 1860 (Cape of Good Hope). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 479, 1860 (Cape Seas; Moluccas; Australia; Port Jackson; Swan River). — Castelnau, Mem. Poiss. Afr. australe, p. 41, 1861 (Cape of Good Hope; Natal). — Pappe, Synop. Fish. Cape of Good Hope, ed. 2, p. 17, 1866 (Table Bay). — Guichenot, Mem. Soc. Sci. Nat. Cherbourg, ser. 2, vol. 2, p. 146, 1866 (Madagascar). — Macleay, Proc. Linn. Soc. New South Wales, vol. 5, pt. 4, p. 544, 1881 (Port Jackson; Australian coasts).

— McCoy, Prodr. Zool. Victoria, vol. 2,
dec. 17, p. 30, pl. 183, July 1889.

— Vauvage, Hist. Madagascar, Poiss.,
p. 518, 1891 (reference).

— Gilchrist, Cat. Fish. South Africa,
p. 126, 1902 (reference).

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(9x4)

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Depth $3\frac{1}{3}$; head $3\frac{1}{3}$. Snout $2\frac{1}{5}$ in head; eye $3\frac{3}{5}$, $1\frac{2}{3}$ in snout; maxillary reaches $\frac{3}{4}$ to eye, expansion $1\frac{4}{5}$ in eye, length 3 in head; barbel $1\frac{1}{3}$; interorbital very low; preopercle edge entire.

Scales 38 in lateral line to caudal base and 5 more on latter; 3 above, 6 below, 15 forward on predorsal till over nostril, 3 rows on cheeks.

d. VII - I, 8, I, first spine $1\frac{2}{5}$ in head, first branched ray 2; a. I, 6, I, spine 3, first branched ray 2; caudal 1, deeply forked; least depth of caudal peduncle 3; pectoral $1\frac{1}{3}$; ventral $1\frac{2}{5}$.

Red, with broad yellow lateral band and yellow line at head. Fins deep red, without spots. Length 267 mm. (Günther.)

Cheilodipterus saltator Bleeker,
Ned. Tijds. Dierk., vol. 1, p. 345,
1863 (Madagascar); vol. 2, p. 285,
1865 (reference).

17990 U.S.N.M. Honolulu. Dr. J.H.
Streets. Length 193 to 198 mm. 2 examples.

26822 U.S.N.M. Johnston Island.
Length 270 mm. Type of Upeneus velifer.

55077 U.S.N.M. Hawaiian Islands.
Albatross Collection (no. 2721). Length 210 mm.

55460 U.S.N.M. Honolulu. Bureau
of Fisheries (nos. 03951, 04001). Length 168
to 170 mm. 2 examples.

55510 U.S.N.M. Hawaiian Islands.
Bureau of Fisheries. Length 143 to 190 mm. 2 examples.

84091 U.S.N.M. Hawaiian Islands.
Length 164 mm.

Pomatomus saltator Fowler, Proc.
Acad. Nat. Sci. Philadelphia, vol.
85, 1934, p. 453 (Durban; St. Lucia
Lake, North Zululand; Natal).

Regan, Ann. Natal. Mus., 1908, p. 244
(Bird Island). —

— Waite, Records South Austral. Mus.,
vol. 2, p. 103, fig. 159, 1921.

— Barnard, Ann. South African Mus.,
vol. 21, pt. 2, p. 509, pl. 22, fig. 3, Oct.
1927 (Port Nolloth, Table Bay, False
Bay, Natal coast, Delagoa Bay).

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Upeneoides roseus Castelnau is somewhat suggestive of the present species. Its incomplete description follows:

Depth $4\frac{1}{2}$ without caudal; head $3\frac{1}{3}$. Eye $3\frac{1}{3}$ in head; barbels long; teeth large and numerous on vomer and palatines. D. VII - I, 8, height less than $\frac{2}{3}$ body depth; A. 7; caudal strongly forked. Body pink, with upper parts purple. Belly silvery. Head olive above. On each side broad gold band. Fins immaculate. Dorsal, caudal and pectoral olive yellow. Ventral flesh color. Length 138 mm.

Pomatomus saltatrix Fowler, ²⁰⁷⁰Proc.

U. S. Nat. Mus., vol. 56, p. 291, 1919

(Cape of Good Hope; Massachusetts;
New Jersey; Rio Janeiro).

Gilchrist and Thompson, Ann.
Durban Mus., vol. 1, no. 4, p. 338,
1917 (reference).

— Jordan and Gilbert, Bull. U. S. Nat. Mus.,
no. 10, p. 917, 1882. — Berg, Anal. Mus.

~~Don Berg,~~
Bac. Buenos Aires, vol. 4, p. 33, 1895. —

Jordan and Evermann, Bull. U. S. Nat.
Mus., no. 47, pt. 1, p. 946, 1896.

— Delfin, Cat. Peces Chile, p. 55, 1901.

— Van Bende, Fisher. Marine Biol. Surv.
South Africa, Rep. no. 3, no. 1, p. 25,
1922 (1924) (off South Africa, in 28
fathoms).

22713. Balayan Bay, Luzon.
January 19, 1908. Length 119 mm.

11 examples. D. 5134. Balukbaluk
Island (N.) λ . 59° W., 6.25 miles (6°
 $44'45''$ N., $121^{\circ}48'E$). February 7, 1908.
Length 48 to 70 mm.

20406. Batangas market. June 7,
1908. Length 70 mm.

2 examples. Langley Point, Cavite,
Luzon. March 23, 1908. Length 64 mm.

1 example. Manila. December 6, 1907.
Length 97 mm.

1 example. Nasugbu, Luzon. January 16,
1908. Length 65 mm.

1 example. Noto River, tide water,
Lagonoy Gulf, Luzon. June 18, 1909.
Length 77 mm.

12 examples. D. 5152. Pajumajan Island
(W.), λ . 2° W., 2 miles ($5^{\circ}22'55''$ N.,
 $120^{\circ}15'45''$ E), Tawi Tawi Group.

Perca lophar Forskål, Descript.
Animal., pp. XI, 35, 1775 (type
 locality, Constantinople). —
Bonnaterre, Tabl. Ichth., p. 127, 1788
 (copied). — Gmelin, Syst. Nat. Linnaeus,
 pt. 1, p. 1311, 1789 (copied). — Walbaum,
Artedi Pisc., vol. 3, p. 332, 1792
 (copied).

Anthias lophar Luckow, Naturges.,
 vol. 4, p. 556, 1799 (copied).

Eleotris lophar Schneider, Syst.
Ichth. Bloch, p. 67, 1801 (copied).

Centropomus lophar Lacépède,
Hist. Nat. Poiss., vol. 4, pp. 249, 257,
 1802 (copied).

13 to 16 rays; scales large, about 25;
caudal forked. Archamia

c.² Epigoninae. Body elongated to very slender; eye very large; preopercle without submarginal ridge, broadly rounded; scales small, caducous; fins all small, low; caudal emarginate or forked; deep water forms. Hymnodus

b.² Cheilodipterinae. Jaws with canines; lateral line complete; scales large; anal short, rays 8; caudal emarginate.

h.¹ Preopercle entire; body elongate; dorsal spines 6. Cheilodipterus

h.² Preopercle more or less serrate; dorsal spines usually more than 6.

i.¹ Dorsal spines 7; scales cycloid.

Synagrops

i.² Dorsal spines 6 or 7.

j.¹ A silvery lateral gland inferior.

Siphamia

Cheilodipterus heptacanthus Lacépède,
Hist. nat. Poiss., vol. 3, pp. ^{538, 543} ~~542~~, pl.
21, fig. 3, 1802 (type locality, "le grand Océan
équatorial"). — Bailliant, Bull. Soc. Philomut.

Paris, ser. 6, vol. 12, p. 29, 1875 (1877).

Gerrhonotus heptacanthus Duoy and Hamard, Voy. Uranie, Zool., p. 400, pl. 61, fig. c, 1824 (post-lacépède; synonymy).

Pomatomus shibeae Lacépède, Hist. nat.
Poiss., vol. 4, pp. ⁴³⁵ ~~436~~, pl. 8, fig. 3, 1802
(type locality, Carolina).

Percia shibeae (Bosc) Lacépède, Hist. nat.
Poiss., vol. 4, p. 436, 1802 (name in synonymy).

Lopharus mediterraneus Rafinesque,
Ind. Ittiol. Sicil., p. 1810 17, 1810
(type locality, Sicily).

Gonenion serra Rafinesque, Ind.
Ittiol. Sicil., p. 53, 1810 (type
locality, Sicily); Carrat. Mon.
Animall. Sicil., p. 53, pl. 10, fig. 3, 1810
(type locality, Sicily).

pale interspaces. Soft dorsal similar.
Usually upper caudal lobe with
5 or 6 oblique slightly darker lines,
lower lobe uniform.

India, East Indies, Philippines,
Indo-China, China, Queensland.

Scomber plumbeus Mitchill, Trans.
Lit. Philos. Soc. New York, vol. 1,
p. 424, pl. 4, fig. 1, 1815 (type locality, ^{New York}).

Chromis epicurorum Gray, Cat.

Fish Grouper, p. 149, 1854 (type locality,
Carolina).

Temnodon conidens Castelnau, Mém. Pers. Afrique
 australe, p. 41, 1861 (type locality, ^{Alger Bay}).

Paractodon nainal Rochebrune,

Bull. Soc. Philom. Paris, ser. 7,
vol. 4, p. 162, 1880.

Pomatomus pedica Whitley,

Austral. Zoologist, vol. 6, pt. 4,

p. 316, February 13, 1931 (on

Temnodon saltator (not Linnaeus)

McCoy).

with 14 to 15 transverse series of basal elements; circuli very fine.

D. VIII - I, 8, V, third spine ^{1 1/2 to} 1 2/3 in head, first ray 2 1/3 to 2 1/2; A. IV, 6, V, second spine 3 1/5 to 3 3/5, first ray 2 1/5 to 2 1/3; caudal 1, deeply forked and lobes sharply pointed; least depth of caudal peduncle 2 7/8 to 3; pectoral 1 1/3 to 1 2/5; ventral 1 2/5 to 1 3/4.

Fawn brown generally, paler below with silvery sheen over lower sides of head and abdomen. Iris golden. Sulphur yellow band wide as pupil from eye to caudal base ending above lateral line at base of upper caudal lobe medially. Barbel pale. Fins all pale brownish. Spinous dorsal with 4 deep mauve horizontal bands, each much narrower than

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Depth $3\frac{1}{2}$ to 4; head $3\frac{1}{8}$ to $3\frac{2}{5}$, width $2\frac{1}{8}$ to $2\frac{2}{5}$. Snout $3\frac{2}{3}$ to $3\frac{4}{5}$ in head from snout tip; eye $4\frac{1}{5}$ to 6, $1\frac{1}{5}$ to 2 in snout, 1 to $1\frac{3}{4}$ in interorbital; maxillary reaches hind eye edge, length $2\frac{1}{8}$ to $2\frac{1}{4}$ in head from snout tip; interorbital $3\frac{3}{5}$ to $4\frac{1}{8}$, convex. Gill rakers 3 or 4 + 11 to 13, lanceolate, $1\frac{3}{4}$ in eye.

Scales 95 to 100 in lateral line to caudal base and 6 or 7 more on latter; 6 to 10 above, 17 to 20 below, 20 to 28 predorsal.

D. VII or VIII — I, 25 to 28, third spine $4\frac{1}{2}$ to $6\frac{1}{4}$ in total head length, first branched ray 2 to $2\frac{4}{5}$; A. I or 2 — I, 26 to 28, first branched ray $2\frac{1}{4}$ to 3, caudal 1 to $1\frac{1}{5}$, forked; least depth of caudal peduncle $3\frac{1}{2}$ to $4\frac{1}{2}$; pectoral $1\frac{3}{5}$ to 2, ventral $2\frac{2}{5}$ to 3.

Dark greenish or gray blue above, sides and below silvery white. Iris silvery white. Dusky blotch close before pectoral at base. Fins olivaceous, lower ones paler or whitish. Young brilliant silvery-white on sides and below.

South Africa, Natal, Zululand, Delagoa Bay, Madagascar, East Indies, New South Wales, Queensland, Western Australia, Victoria, Tasmania, Chili. Also widely distributed in the Atlantic.

Whitley separates the
Australian form as Pomatomus
pedica as it "has ctenoid
scales, seven or eight dorsal
spines and a row of conical
teeth inside the outer row of
large ones in the upper jaw"
+ + "specimens in Melbourne"
+ + "were deeper in body than
the American fish and not so
blue."

U. S. N. M., No. 29004.

Australian Museum. Length 370 mm. Depth $3\frac{3}{5}$. Scales not ctenoid. Dorsal spines 7.

U. S. N. M., No. 28689.

Australian Museum. Length 354 mm. Depth $3\frac{3}{4}$. Scales not ctenoid. Dorsal spines 8.